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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,319	02/12/2004	Jae-Young Jung	46295	4096
1609	7590	07/07/2006	EXAMINER	
ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.			MULL, FRED H	
1300 19TH STREET, N.W.			ART UNIT	
SUITE 600			PAPER NUMBER	
WASHINGTON,, DC 20036			3662	

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/776,319

Applicant(s)

JUNG ET AL.

Examiner

Fred H. Mull

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Observations

1. For simplicity, all citations to the specification will refer to the paragraph number used in the application's Patent Application Publication, US 2004/0160360 A1.
2. The examiner considers ¶¶96 and ¶106, taken together, as providing the definition of "pseudo velocity".

Response to Arguments

3. Applicant's arguments on p. 9, with respect to various objection(s), have been fully considered and are persuasive. The objections have been withdrawn.
4. Applicant's arguments on p. 9-12, with respect to the rejection(s) over Fuchs have been fully considered and are persuasive with regard to the rejection as formulated in the previous rejection. This rejection has been withdrawn, but replaced with a reformulated rejection. Since the new rejection is similar to the previous rejection, applicant's arguments relative the new rejection will be addressed here.

Firstly, applicant argues that the examiner's identification of GPS receiver 112 in Fig. 1 as satellite data collector for collecting "pseudo range between a satellite and mobile stations (MS)" (p. 10, 3rd ¶, lines 6-7) is incorrect. Applicant further states "in Fuchs, the *position server*, rather than the receivers 112, collects pseudo range information ..." (p. 10, 3rd ¶, lines 10-11). With regard to the argument that the position server rather than the GPS collects pseudorange information, the examiner agrees, and

now cites the position server as the satellite collector that collects information from the mobile and the reference stations.

Secondly, applicant argues “the Fuchs model does not disclose nor reasonably suggest a pseudorange velocity calculator that calculates a pseudo velocity using only a velocity component directed to the MS as claimed ...” (p. 11, 2nd ¶, lines 7-9). The portion of Fuchs cited by the examiner in the previous action uses the term “pseudo-range rate”, which the examiner identifies as the satellite velocity. Applicant argues that this velocity is not the line-of-sight velocity component in the direction of the MS. However, Gray teaches that the “pseudo range rate ... is the biased magnitude of the vector difference, along the line of sight, between the user’s velocity and the satellite velocity” (col. 5, lines 8-12; emphasis added, where a velocity component in one direction is a scalar). Thus, the definition of “pseudo-range rate” includes the light-of-sight velocity component in the direction of the MS.

Thirdly, applicant argues “the Fuchs Patent does not disclose nor reasonably suggest a calculator for receiving the pseudo velocity calculated *using only* a velocity component directed to the MS and calculating a Doppler shift. The Fuchs Patent addresses frequency effects resulting from the ionosphere/troposphere, but does not reasonably suggest determining a velocity using only a velocity component directed to the MS for Doppler calculation.” (p. 11, 4th ¶, lines 2-7). Applicant fails to cite the portion of Fuchs that requires frequency effect correction. However, an examination of Fuchs leads to: “The range and range rates of a satellite signal, as measured by the mobile device, are also affected by time and frequency referencing errors in the mobile device.

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Conventional GPS receivers address this uncertainty either by searching over a large range of possible frequencies and possible code-delays, or by tuning or steering the mobile device oscillator with an accurate external reference. As described below, the invention uses a novel technique to adjust the information in the initialization packet for the mobile clock error, avoiding the need for a large search or a steered/tuned oscillator.” (col. 6, lines 57-67). This states that an initialization packet for clock error correction is needed for the calculation. However, applicant’s invention also uses clock error correction (¶63, final three lines) and frequency correction (¶64). Thus, applicant’s invention does not seem to operate using only a velocity component directed to the MS and calculating a Doppler shift in the positioning procedure, and appears to use a procedure similar to that of Fuchs.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The determination of pseudo velocity using only a velocity component directed to the MS and calculating a Doppler shift has not been described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. From applicant's disclosure, it appears that applicant's invention uses clock error correction (§63, final three lines) and frequency correction (§64) in its positioning procedure that leads up to the pseudo velocity calculation. Thus, applicant's invention does not seem to operate using only a velocity component directed to the MS and calculating a Doppler shift in the positioning procedure.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Fuchs, previously cited, with supporting evidence provided by Gray. The use of a secondary reference to provide the definition of a term is permitted under MPEP 2131.01(II). The use of a secondary reference to show that a characteristic not disclosed in the primary reference is inherent is permitted under MPEP 2131.01(III).

In regard to claim 1, 5, 9, and 13, Fuchs discloses:

a satellite data collector (120, Fig. 1; col. 11, lines 39-46) for collecting satellite orbital information and pseudo range between a satellite and at least one of a mobile

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station (MS) and a base station (BS) (130) of more than three consecutive times from a plurality of satellites (col. 7, lines 20-28);

a satellite velocity calculator for calculating velocity of satellites relative to the Earth-Centered, Earth-Fixed (ECEF) coordinate system using the satellite orbital information; a pseudo velocity calculator for calculating pseudo velocities between the MS and each satellite observed by the MS at a position measurement time of the MS using a velocity component directed to the MS from among a plurality of satellite components (col. 3, line 66 to col. 4, line 47, where the pseudo-range rate is a velocity component directed to the MS from among a plurality of satellite components (see below)); and

a satellite acquisition information calculator for calculating a code phase using the pseudo range, calculating a Doppler shift using the pseudo velocity (col. 9, line 58 to col. 10, line 5), where the model's estimation of frequency is inherently taking the Doppler shift into account. If the model neglected Doppler shift, the frequency would just be the broadcast frequency of the satellites and no estimation would be necessary. The expected uncertainty in frequency takes into account user frequency reference errors.

Gray provides the definition of pseudo-range rate. Gray teaches that the "pseudo range rate ... is the biased magnitude of the vector difference, along the line of sight, between the user's velocity and the satellite velocity" (col. 5, lines 8-12; emphasis added, where a velocity component in one direction is a scalar). Thus, the definition of

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“pseudo-range rate” includes the light-of-sight velocity component in the direction of the MS.

In regard to claims 2 and 10, Fuchs further discloses the pseudo range is estimated considering a propagation delay between each satellite observed by the MS and the MS (col. 3, line 66 to col. 4, line 47; col. 7, lines 10-19).

In regard to claims 3 and 11, Fuchs further discloses the pseudo velocity is estimated considering a propagation delay between each satellite observed by the MS and the MS (col. 3, line 66 to col. 4, line 47).

In regard to claims 4 and 12, GPS signal information comprises satellite coordinates and a coordinate extraction time.

In regard to claims 6-8 and 14-16, the satellite acquisition information calculator calculates the Doppler shift containing both a frequency variation of the satellite signal at the time T_a at which the MS expects to search for the satellite signal and a differential value of the frequency variation (col. 7, lines 20-28), where the pseudorange model that the Doppler is taken from contains a representation of the model at a given time as well as the differential change of the model in time.

Conclusion

7. Since the rejection has been modified by changing the portion of Fuchs identified as the satellite collector, this action is made Non-Final.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred H. Mull whose telephone number is 571-272-6975. The examiner can normally be reached on Monday through Friday from approximately 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Fred H. Mull
Examiner
Art Unit 3662

fhm



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